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This pilot study was an attempt to meet some everyday needs of handicapped students in college by assigning a student aide to each. Aides were given financial assistance or "workshops" from project funds in return for their services. Such finds, therefore, served the dual purpose of helping the aide financially, and helping handicapped students with their activities of daily living. With the use of student aides for assistance with their activities of daily living, handicapped students experienced a nearly normal college life. It was found, however, that personal nursing-type services had to be provided by adults such as practical nurses or maids. One major advantage of student aides appeared to be their full acceptance, as such, into dormitory life. Specific recommendations are made. It is further suggested that rehabilitation workers should encourage the officials at many other small colleges to undertake this type of service to handicapped students. (Author)

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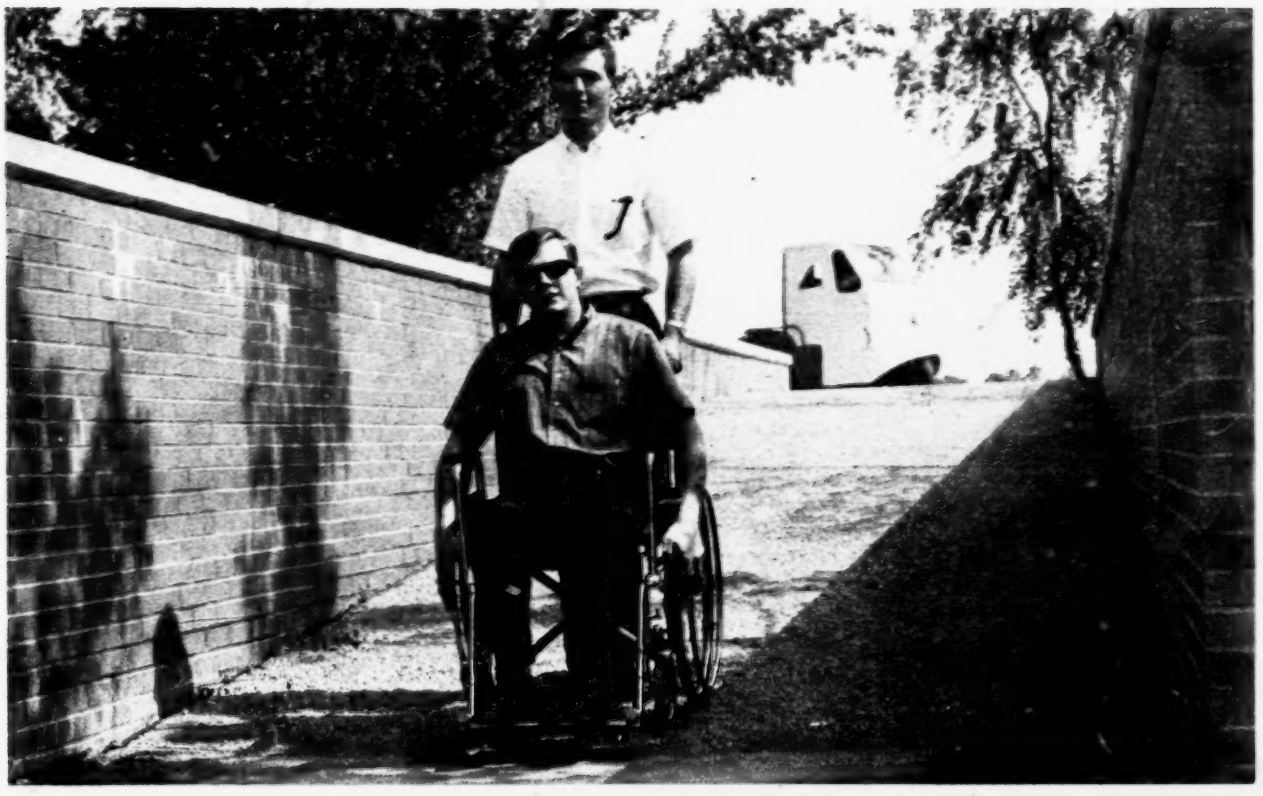

Final Report of Pilot Study

Student Aides for Handicapped College Students

ED 065 330

St. Andrews Presbyterian College
Laurinburg, North Carolina

STUDENT AIDES FOR HANDICAPPED COLLEGE STUDENTS

Final Report of a Pilot Study of the use of Student Aides to the Physically Handicapped in Higher Education

May 1, 1967

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The project Research Evaluation Team consisted of Dr. Edwin E. Wheeler, Dr. Wade O. Stalnaker, and Dr. Douglas W. Schoeninger. Their contributions are reflected throughout all aspects of the study and this report.

Special thanks are also due to Miss Mary Switzer, National Commissioner of the Vocational Rehabilitation Administration; and Mr. Graddon Rowlands who represented the Mary Duke Biddle Foundation in giving generous support to this study.

Significant Findings for the Rehabilitation Worker

1. Purpose and Methodology. This pilot study was an attempt to meet some everyday needs of handicapped students in college by assigning a student aide to each. In most instances, the aide also was a roommate, while in a few cases, aides were assigned who did not room with the handicapped partner. The usual academic admissions information such as high school average, College Board scores, and financial need was used in selecting the aides. Standardized tests were also used as a means of collecting selected objective data for research purposes. Aides were given financial assistance or "workships" from project funds in return for their services. Such funds therefore, served the dual purpose of helping the aide financially, and secondly, helping handicapped students with their activities of daily living.

2. Findings. Severely handicapped students were able to attend one institution of higher education which had modified physical facilities. With the use of student aides for assistance with their activities of daily living, handicapped students experienced a nearly normal college life. It was found however, that personal nursing-type services had to be provided by adults such as practical nurses or maids. These services were scheduled chiefly in the early morning and late evening hours. One major advantage of student aides appeared to be their full acceptance as such, into dormitory life. Non-student attendants on the other hand, did not seem able to overcome this barrier and therefore, came into the dormitory situation only as needed.

3. Implications. The relative success of studies such as this strongly imply that rehabilitation workers can "raise their sights" more than ever before. Handicapped individuals can be counseled for broader horizons in the work field and given access to more liberal arts education. Where vocational training has perhaps been emphasized in the past, it can now be seen as only one of several areas for consideration by the rehabilitation counselor.

4. Recommendations. Four specific recommendations arising from this study were: (1) A need for a summer trial and evaluation session for all new student aides and handicapped, (2) A need for the establishment of a rehabilitation seminar for academic credit conducted throughout the year for aides, (3) A specific ratio or guideline for admissions as to the number of handicapped students per able-bodied students on campus, and (4) The continued identification and elimination of all architectural barriers on this campus.

It is further suggested that rehabilitation workers should encourage the officials at many other small colleges to undertake this type of service to handicapped students. Reference to this report would be a logical starting point for any such recommendation.

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CHAPTER I

INTRODUCTION

Background Information. This report is the final summary of a pilot study covering the period from November 1, 1965 to February 28, 1967. A long-range proposal based on pilot study findings was approved by V.R.A., beginning March 1, 1967 and ending June 30, 1971.[1] The long-range proposal carried out specific recommendations which resulted from the pilot study experiences. These included the use of control groups and regular individual counseling sessions for each student participant. Other funds were obtained from the Mary Duke Biddle Foundation. In addition, the college itself provided funds, facilities, personnel and services necessary for a successful operation.

Prior to the initial V.R.A. grant, college officials had invested considerable time and effort in the problem of serving handicapped students. An awareness of the complexity of such services and the increasing cost of providing them led to this pilot study.

Purpose and Rationale of the Project. The chief purpose of the study was to discover ways in which needs of handicapped students at St. Andrews Presbyterian College could best be served. These students had recieved rehabilitation services prior to enrollment. Because of the extent of their handicap however, several students were still dependent upon aide or attendant help.

The proposal which was presented to V.R.A. on June 1, 1965 indicated the following purposes:[2]

1. To provide sociological observation of the physically handicapped.

2. To evaluate the use of the student aide as counselor assistant.

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[1] Ralph G. Hester, and Robert M. Urie, Application for Continuation Grant and Detailed Progress Report, Pilot Study of Student Aides to the Handicapped in Higher Education, Laurinburg, North Carolina, October 1, 1966.

[2] Ibid., Page 21.

3. To develop and evaluate sociological documentations of the student aide program under supervision.

Motivation for the study came from practical day to day experiences of the college staff in working with handicapped students. Such students represented a wide range of disabilities and consequently, a wide range of individual needs. In other words, specific practical problems were evident in the college setting before the study was undertaken.

In addition to the pragmatic problems facing the college staff, there were also certain underlying philosophical principles. These have been fully stated by Rusalem[3] and may be summarized as follows:

1. Having met all basic college standards of admission any individual, even though handicapped, has a right to attend an institution of higher learning.

2. Persons with a wide variety of handicaps have made significant contributions to society and therefore, a handicapped student's potential should not be judged solely on the basis of his physical limitations.

3. The shortage of skilled personnel in almost all areas of human endeavor demands utilization of the talents of the handicapped as well as the able-bodied.

4. Higher education in the United States has traditionally concerned itself with the needs of individuals and this concern must logically extend to the individuality of the handicapped student.

5. Educational and social integration of the handicapped student is now widely accepted and is based on a number of significant reality factors.

These then, were the practical and theoretical considerations which led to the development of a pilot study. After one year of study a higher degree of specificity in defining purposes was determined. A refined methodology was also evident by then, and both of these advances were reflected in the progress report cited earlier.[4]

Review of the Literature. Several studies have been conducted concerning physically handicapped students in higher education. Devone

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[3]Herbert Rusalem, Guiding the Physically Handicapped College Student (New York: Teachers College, Columbia University, 1962), pp. 11-12.

[4]Hester and Urie, op. cit. pp. 4-17.

West (1965)[5] and J. Blair Stone (1965)[6] administered the Edwards Personal Preference Schedule to disabled and nondisabled college students and adults. These similar studies suggested that certain personality characteristics could be identified among disabled college students. Differences between the results of the two studies suggested however, that the findings could not be generalized from one college population to another.

A comprehensive view of the needs of physically handicapped college students was obtained by William V. Tucker (1964)[7] at Kansas State Teachers College. The results of his research were published in a handbook which provides a convenient reference for college administrators as they deal with handicapped students. Tucker suggested a formal approach to the needs of such students and encouraged the formation of a Rehabilitation Committee on campus as a first step. This handbook also gave specific suggestions as to student health, physical facilities modifications, and suppliers of equipment.

Another basic resource for dealing with handicapped college students is the work of Herbert Rusalem (1962)[8]. He reviewed the problems and needs of physically handicapped students on a national basis and concluded that the matter was simply overlooked in most instances.

Other significant studies financed by V.R.A. grants were investigated but the results of those projects were not available at the time of this writing. Hofstra University was engaged in a complete modification of physical facilities in order to eliminate architectural barriers. The University of Missouri also had completed a major project which involved removal of architectural barriers as well as consideration of the total needs of handicapped students.

Extensive pioneering work in the area of service to the handicapped had given the University of Illinois a nationwide reputation. Wayne State University also had developed a formal program dealing with the same problems.

These then were some of the more significant studies and project which were consulted during the St. Andrews pilot study period. Unique

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[5]Devone R. West, "A Comparison of the Psychological Needs of Disabled and Nondisabled College Students and Adults." Lubbock, Texas 1965 (Mimeographed).

[6]J. Blair Stone, "The Edwards Personal Preference Schedule and Physically disabled college students," Rehabilitation Counseling Bulletin, V. 9 No. I (September, 1965), pp. 11-13.

[7]William V. Tucker, Higher Education and Handicapped Students (Kansas: Kansas State Teachers College, 1964).

[8]Herbert Rusalem, Guiding the Physically Handicapped College Student (New York: Teachers College, Columbia University, 1962), pp. 11-12.

to the latter, however, was the use of student aides as a formal approach to meeting certain physical needs of handicapped students.

The Setting. St. Andrews Presbyterian College is a four-year, liberal arts, coeducational institution. It was formed by the merger of Flora Macdonald College, Presbyterian Junior College, and Peace College in 1958. The all-new campus was first occupied in the fall of 1961 and at the time of this report approximately 960 students were enrolled. Physical facilities were designed with handicapped students in mind. A minimum of architectural barriers were present in the finished construction. This fact became rather widely known in a few years and each year more handicapped students applied for admission to the College. This group of handicapped students provided, even demanded by their presence, the need for a careful study of all factors related to their progress in college.

CHAPTER II

METHODOLOGY

An Overview. This pilot study was an attempt to meet some everyday needs of handicapped students in college by assigning a student aide to each. In most instances, the aide also was a roommate, while in a few cases, aides were assigned who did not room with the handicapped partner. The usual academic admissions information such as high school average, College Board scores, and financial need was used in selecting the aides. Standardized tests were also used as a means of collecting selected objective data for research purposes. Aides were given financial assistance or "workships" from project funds in return for their services. Such funds therefore, served the dual purpose of helping the aide financially, and secondly, helping handicapped students with their activities of daily living.

The pilot study as a whole must be seen in two fairly distinct phases or periods of time. The first period extended from November 1, 1965 to August 31, 1966; the second from September 1, 1966 to February 28, 1967. During the second period, efforts were made to implement the refined methodology which resulted from the first phase of the study. For example, there were certain structural changes made at the beginning of the second period.

One structural change involved the provision of a full-time Project Director who held individual counseling sessions with each student participant. This procedure was in contrast to the first period in which four primary consultants were utilized for student contacts. Placing these counseling and administrative duties in the single position of Director came about as a direct recommendation from the first period of the study.

Another important difference between the two periods within the pilot study was in assignment of aides to roommates. An orientation period prior to the opening of college late in August of 1966 provided an opportunity for all prospective participants to become acquainted with each other. Following this orientation period, it was possible through interviews with the supervisor of aides and the director, to allow student self-selections. Aides chose handicapped students for roommates and the handicapped chose their aides. A fairly high level of mutual agreement prevailed, apparently tending to improve overall morale and cooperation in the project.

It was apparent that major refinements were possible even within the pilot study itself. Findings, insights, and suggestions gathered late in the spring semester of 1966 were put into practice at the

beginning of the fall semester. A comprehensive seminar with off-campus consultants also yielded highly significant information about the project which was incorporated into the long-range design. A fairly high degree of administrative flexibility made it possible to serve the needs of students and research alike.

Population. The larger population consisted of approximately 960 men and women in a church-related, liberal arts college in the South. More specifically, the study population consisted of 52 students, age 17-22, enrolled as regular college students. Of this number, 7 were handicapped males, 16 were handicapped females, 7 were male aides, and 22 were female aides. The discrepancy between the number of female handicapped and aides was due to a number of dropouts and the assignment of substitutes for them. Table 1 provides a comparison between the project participants and the general college population on admissions data.

Table 1
Comparison of Admissions Data
For
Project Participants and General College Population

Group	High School Average	CEEB-SAT
Project Handicapped	87.28	956
Project Aides	87.95	994
Class of 1969	86.30	962
Class of 1968	85.97	956
Class of 1967	86.11	935
Class of 1966	86.18	917

An inspection of the above data indicates that the high school averages and S.A.T. scores of project aides were slightly higher than that of the handicapped and general college population.

Handicapped participants were chosen for the project on the basis of a medical excuse from regular physical education requirements of the College. Among those who met this criterion some were excluded because of resistance to the proposed study. Others were excluded on the basis of having demonstrated total independence in activities of daily living. The net handicapped population represented a wide range of disabilities from a static cardiac condition to quadriplegia from polio or congenital defects. This range of disabilities is shown in table 2 on the following page.

Aides on the other hand, were chosen chiefly on the basis of financial need as established by the College Scholarship Service,

Table 2

Disabilities Represented in the Pilot Study

Number of Students	Condition	Cause
Males		
5	Paraplegic-Wheelchair	(2) Polio (3) Traumatic Accident
1	Paraplegic Ambulatory	Congenital Spina Bifida
1	Upper Extremity Limitation	Polio
1	General Weakness Ambulatory	Muscular Dystrophy
Females		
6	Paraplegic, Wheelchair	(1) Spina Bifida (4) Polio (1) Traumatic Accident
2	Quadriplegic, Electric Wheelchair	(1) Polio (1) Congenital Contractures
3	Paraplegic, Ambulatory	(3) Polio
1	General Weakness, Ambulatory	(1) Cardiac Condition
1	Weakness in hips, subject to fractures, ambulatory	(1) Congenital defects
1	Weakness in upper extremities Ambulatory	(1) Polio

acceptable academic records, and personal recommendations from adults. Among those who met these criteria, some were excluded because a sufficient number of aides already had been assigned on a first come, first served basis.

At the beginning of the pilot study, all four college classes were represented; freshmen, sophomores, juniors, and seniors. Insofar as possible, aides were assigned to handicapped students at the same academic class level. In other cases only two broad distinctions were possible: upperclassmen versus underclassmen.

In summary, it should be emphasized that the project participants were not a sample as such of the total college population. Handicapped students participated on the basis of need for assistance and a willingness to cooperate in research. Aides participated on the basis of interest, financial need, and acceptable academic achievement. Neither group however, contained all available students in these categories.

Data Collection and Analysis. Five types of information were gathered in the pilot study and appropriate treatment techniques were applied to these data. Admissions and Academic Data. Included in this area of information were high school averages, College Board scores, and a continuous, cumulative grade-point-average for all college work. These data were the responsibility of the project consultant for academic matters who had a masters degree in education. His doctoral work was in progress at Columbia University.

Health and Medical Data were obtained prior to admission to the college. Reports of family physicians were utilized as well as physical medicine specialists in certain cases. Near the end of the pilot study period, the college physician and urologist were also involved in pre-admission examinations. All referrals and recommendations were channeled through the project director's office. During the pilot study period, further health and medical data were accumulated in the college health center by the project registered nurse and the college physician. Matters related to physical fitness and appropriate activities for the handicapped were continually reviewed by the on-campus consultant in Physical Education. This consultant held a masters degree and had completed all course work for the doctorate in Physical Education.

Psychological Test Data were from standardized instruments in the areas of interests, attitudes, self-concept, and personality adjustments. Locally developed sociograms were also employed in dormitory suites occupied by one or more handicapped student. These data were gathered in the study by the on-campus consultants who held Ph.D. degrees in psychology and sociology respectively.

Interview Data comprised another major area of information about student participants. This material consisted of counseling observation by the director-counselor following individual sessions with students. His training was at the Masters degree level in guidance and counseling, with work in progress on the doctorate in educational psychology. The supervisor of aides supplemented the interview data with written observations following each supervisory contact with aides.

Student Report Data consisted of self-reports, partner observations (aide observing handicapped and the handicapped observing aides) and responses to locally-developed forms or instruments. Self reports consisted of personal information questionnaires, activities of daily living checklists and supplementary medical information, and written assignments which were made by the director during regular meeting periods. Partner observations were structured by guidelines so as to differentiate between subjective and objective materials. These observational reports were required weekly of all student participants during the first phase of the study, and approximately twice per semester during the second phase. Other experimental survey forms were administered at random intervals in order to encourage student feedback on all project activities.

Analysis of objective data consisted chiefly of computing means for handicapped and aides separately, followed by t and F tests of significance where appropriate. The remaining materials such as physical-medical data, interview notes, and student reports were evaluated by the Project Staff and Off-Campus Research Evaluation Team on an individual case-study basis. More refined statistical techniques for the treatment of the objective data were under investigation at the time of this report.

Study Procedures, Criteria and Instruments. As would be expected in a pilot study, nearly all aspects of the program moved through an evolutionary process from vague, general impressions or "hunches" to reasonably distinct concepts. The planning grants and extensions were authorized for the purpose of defining the variables to be studied and to develop an adequate methodology for such a study. In this light, the total impact of the study was to examine implications of the use of student aides for the handicapped. This meant that handicapped students and aides alike were observed and studied on each variable.

The academic variables consisted of each subject's high school average and College Board scores upon admission to the College, followed by his cumulative grade point average at the end of each semester in residence. Instructor's written evaluations of each subject were incorporated into the long-range project design, but were not utilized to any significant extent in the pilot period. Following the college graduation of each student, his scores on the Graduate Record Exam were available because this test was administered to all seniors. Statistical comparisons were made between beginning and end-of-year academic data for the project participants and the general college population.

The physical and medical variables consisted of pre-admission examinations by family physicians and continuous clinical evaluation by the campus physician assigned to the project. This information was supplemented by three other sources: the handicapped student himself, his aide, and the project nurse. Each handicapped student was required to submit a checklist of activities of daily living which yielded a numerical score. His aide also completed the same instrument as he evaluated the handicapped student's needs for assistance. The project nurse maintained records on all contacts with the students, including both the handicapped and aides. At the end of each semester, the director, the nurse and physician

determined the level of each student's overall physical functioning. This procedure simply determined if each student was maintaining his health so as to continue in the regular academic program of the college.

The psychological variables included data relative to personality adjustment, self-concept, and attitudes toward the physically handicapped. Initial tests with the standardized instruments were used to determine baseline profiles for each student as he entered into the study. Subsequent administrations were utilized in an attempt to examine change in project students. For the most part, this consisted of beginning and end-of-year testing to measure change and growth in the psychological variables. Initially, it was felt by the project staff that group comparisons would be most significant. But with further refinement of the project design by the Research Evaluation Team, it became apparent with the small number of subjects, that an analysis of individual test records would be appropriate. Thus, the refined methodology placed more emphasis on the changes or growth within the individual, although group comparisons were still maintained.

The social adjustment variables included the student's relationships with other persons both generally and specifically in his living unit. These data were gathered from the psychological instruments, from sociograms which were developed locally, from interview materials, and from student reports. Staff observations of student participation in campus life, office-holding, and general acceptance by the student body all added to the total information pool in this area.

The vocational adjustment variables were to be determined by standardized interest testing and post-graduation evaluations. Results of initial interest testing were used in vocational counseling sessions throughout the study period. Near the end of the study, vocational interest profiles were used in the screening of potential aides. Further vocational adjustment data were gathered in regular monthly visits by the District Vocational Rehabilitation Counselor. The project staff recognized from the beginning the impracticality of making detailed vocational assessments in the relatively short time in this study. More emphasis on vocational adjustment was to be given as students graduated each year and moved into jobs or graduate study.

Instruments. The Strong Vocational Interest Blank and the Minnesota Multiphasic Personality Inventory were the two widely-known instruments employed in this study. In addition, The Tennessee Self Concept Scale (TSCS) was used. The norms for the TSCS were developed from a broad sample of 626 people, including people from various parts of the country, and age ranges from 12 to 58. There were approximately equal numbers of both sexes, both Negro and White subjects, representatives of all social, economic, and intellectual levels from 6th grade through the Ph.D. degree. Subjects were obtained from high school and college classes, employers at state institutions and various other sources. Reliability data based on test-retest with 60 college students over a two week period yielded coefficients for separate scales ranging from .61 to .92. Content validity was based on unanimous agreement by the judges that an item was classified correctly. Further technical information about this instrument may be

found in the publisher's manual.[9] Independent norms for the TSCS were also made available to the project by a member of the Research Evaluation Team from the University of Georgia, based on students from that institution (Appendix B).

A fourth research instrument used in this study was the Auvenshine scale, Attitudes Toward Disabled College Students (ATDCS). It was administered to aides and handicapped students alike at the beginning of the second phase of the project. It was administered again to each student who dropped out of the project. Background data on this instrument are available in a doctoral dissertation by Auvenshine.[10]

The Job Satisfaction Inventory (JSI) was proposed for post-graduation evaluation of vocational adjustment among the students in this study. The JSI was developed by Johnson (1955)[11] and revised by Muthard and Miller (1966).[12]

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[9]William H. Fitts, Tennessee Self-Concept Scale Manual, Nashville, Tennessee: Counselor Recordings and Tests, 1965.

[10]Charles D. Auvenshine, "The Development of a Scale for Measuring Attitudes Toward Severely Disabled College Students," (unpublished doctoral dissertation, University of Missouri, Columbia, 1962).

[11]G. Johnson, An instrument for the measurement of Job Satisfaction. Personnel Psychology, 1955, 8, 27-37.

[12]John E. Muthard and Leonard A. Miller, The Criteria Problem in Rehabilitation Counseling, The University of Iowa, Iowa City, Iowa, 1966.

CHAPTER III

TENTATIVE RESULTS FROM THE PILOT STUDY

It must be reemphasized that the results of this pilot study are highly tentative for several reasons. The pilot nature of the study did not allow precision, uniformity, or optimum procedures for gethering data. The two phases of the study mentioned earlier also resulted in a somewhat fragmented picture of what was actually happening in the process. Student groups in the first phase were not entirely the same students who finished the second phase, although there was sufficient overlapping to raise some interesting speculations. Finally, the comments below are termed "results" only because they reflect certain impressions that were becoming evident to the project staff near the end of the pilot study period.

Academic Data. The first screening of aides required that each prospect have at least a "B" average on all of his college work. This resulted in a somewhat higher overall average for this group which was chosen, in comparison to the handicapped students on the one hand, and the total college population on the other hand. Table 3 on the following page reflects this difference in grade point averages. On the Scholastic Aptitude Test upon admission to St. Andrews, the female handicapped students who later dropped out of the project, had significantly higher scores than those female handicapped who remained in the project, 993 vs. 908 (Appendix C).

Health and Medical Data. All project participants had access to the college health center as students of the college. In addition, the project nurse and physician maintained a close contact with the handicapped students. Special attention was given to health problems such as pressure sores and accidental injuries due to the absence of sensation. The project urologist was utilized on referral by the nurse and physician in each case when a urinary-tract infection was suspected. The Health Center report for the second phase of the pilot study is given in table 4 on page 18.

This report illustrates the relatively greater amount of health personnel time which may be required as the handicapped population increases on a college campus. It should be noted however, that with one exception, none of the handicapped students lost any significant amount of academic time due to health factors during the second phase. The exception was due to the sudden death of a male handicapped student with advanced muscular dystrophy who developed pneumonia and complications arising from his general condition.

Table 3

Comparison of Academic Data
For
Project Participants and General College Population

Cumulative Grade Point Averages*--End of Spring Semester 1965-66

Class	Male	Female	Class
Freshmen	2.30	2.84	2.59
Sophomores	2.44	2.92	2.68
Juniors	2.70	3.04	2.87
Seniors	2.79	3.15	2.99
All-College	2.51	2.96	2.75

Project Participants

Aides

End of Fall Sem. 66-67			'66 Year Average		
Male (N=6)	Female (N=15)	Total (N=21)	Male (N=4)	Female (N=10)	Total (N=14)
3.44	2.88	3.04	3.87	3.49	3.60

Handicapped

End of Fall Sem. 66-67			'66 Year Average		
Male (N=4)	Female (N=10)	Total (N=14)	Male (N=2)	Female (N=8)	Total (N=10)
2.67	2.64	2.65	2.86	3.00	2.97

* Scale: A = 6, B+ = 5, B = 4
C+ = 3, C = 2, D = 1

Table 4

Health Center Report

For

Second Phase of Pilot Study

Visits to Health Center by project aides	69
Visits to Health Center by handicapped	97
Visits to Handicapped by project nurse	368
Handicapped confined to bed one or more days	5
Aides confined to bed one or more days	2
Visits to Health Center by regular students	1773
Regular students confined to bed one or more days	237
Number of Health Center visits per regular student	1.84
Number of Health Center visits per aide	3.14
Number of Health Center visits per handicapped	6.47

Another important result of the pilot study in health matters was the development of an adaptive physical education program. This was accomplished with the aid of consultants and a careful study of special programs in other institutions. With the introduction of this program, a student could receive physical education credit, if desired, for carrying out a personal program of prescribed physical therapy or exercise. New courses were introduced as follows:

101-102M (a) Adapted Physical Education for Men.

101-102W (a) Adapted Physical Education for Women.

This is a program designed to develop and maintain a maximum level of physical fitness for students who are unable to participate in the normal program because of physical limitations. Under this system, a physically handicapped student has the following options for earning his physical education requirements:

1. Complete 203 Sports Appreciation — Credit 1 S.H.
   204 Personal and Community Hygiene — Credit 3 S.H.

or

2. Prescribed exercises and lifetime sports in the normal program, 191-102-M (a), W(a) — Credit 2 S.H. Credit 2 S.H.

or

3. Physically handicapped caloric-energy output in performing activities of daily living in the college setting. — Credit 2 S.H.
   Balance of physical education to be a combination of theory courses and lifetime sports. — Credit 2 S.H.

Psychological Test Data. Examination of the test data revealed that there were twelve possible categories of students to be considered. In the following list, the first four categories are divided into Continuers and Dropouts. These terms indicate whether or not a student participated in the study beyond the end of the first phase, August 31, 1966.

1. Female Aides - Continuers and Dropouts
2. Male Aides - Continuers and Dropouts
3. Female Handicapped - Continuers and Dropouts
4. Male Handicapped - Continuers and Dropouts
5. Female Aides - New or second phase of study
6. Male Aides - New or second phase of study
7. Female Handicapped - New or second phase of study
8. Male Handicapped - New or second phase of study

Means and standard deviations were computed (Appendices D.E.F.) and a preliminary analysis indicated several points of difference between groups:

1. On the Tennessee Self Concept Scale, between female aides who continued with the project and female aides who dropped out of it but remained in college:

    a. Higher Total Conflict scores for continuers
    b. Higher Defensive Positive scores for continuers
    c. Lower Personality Integration scores for continuers
    d. Higher Distribution #5 or more extreme scores for continuers

2. On the Tennessee Self Concept Scale, between female handicapped who dropped out of the project but remained in college:

    a. Lower Distribution #2, or less definiteness for continuers

The Total Conflict score when high, indicates confusion, contradiction, and general conflict in self perception. Low scores have the opposite interpretation. The Defensive Positive scale is a subtle measure of defensiveness based on the assumption that individuals with psychiatric difficulties do have a negative self concept at some level of awareness even though a high Positive score is reported. Extreme scores in either direction are considered significant. The Personality Integration scale is one of six empirical scales on the TSCS. Low scores indicate a relative lack of total integration. The Distribution scores indicate the way one distributes his responses across a scale of five available choices. Consequently, ones and fives indicate a higher degree of certainty in the self-description than do threes.

These TSCS data tend to suggest that students who leave the project are relatively better adjusted than those who remain in it. This impression is very tentative at this state in the study and is based on small numbers of subjects and hence should not be generalized in any way. Possibly, this study project provided an atmosphere of security for students involved in it and as their concepts of self became more positive over a period of time, they were enabled to move on and out of that particular milieu.

On the Minnesota Multiphasic Personality Inventory data, a significantly lower Psychopathic Deviate score was observed for female handicapped who continued in the project than those who dropped out of it, but remained in college (Appendix G).

The Auvenshine additional data were preliminary and inconclusive at the close of the pilot period. No significant differences were observed in the groups tested. It was interesting to note in the case of four dropout aides who were re-tested with this scale, that two had lower scores than at the beginning while two had higher scores.

The non-occupational scales on the Strong Vocational Interest Blank were examined for differences but none were observed. These scores

are reported in table 5 below.

Table 5
Strong Vocational Interest Blank
Non-occupational Scales for Project Participants

	IM	MF	OL	SL
Male Handicapped (N=5)				
Mean	52.00	38.80	53.80	35.20
S.D.	9.20	11.44	5.52	8.86
Male Aides (N=6)				
Mean	51.60	35.33	53.83	49.80
S.D.	5.96	10.82	5.73	9.41

Female Handicapped (N=10)		Female Aides (N=15)	
Means	54.30	Means	56.60
S.D.	10.63	S.D.	10.75

Statistical tables and other detailed information about this study may be obtained by writing directly to the V.R.A. Project, St. Andrews Presbyterian College, Laurinburg, North Carolina 28352.

Interview Data and Student Reports. Individual contacts were recorded only during the second phase of the study, beginning in September, 1966. During this time, thirteen group meetings were conducted by the director for testing purposes, lectures on rehabilitation concepts, and viewing films. Three meetings were held with aides as a group for discussion of problems encountered in their role.

Individual contacts were made by the supervisor of aides about once per week. Approximately 152 counseling sessions were held by the director-counselor.

Table 6 on the following page illustrates the variety of reasons given by students for withdrawing from the project during the pilot period. There was no consistent pattern to be found among these reasons but it was felt that long-range records of this nature would be meaningful.

One female handicapped student who chose to withdraw from the project in the Spring of 1966 wrote, "I feel that V.R.A. is a very worthwhile project - but I also feel that it is trying to accomplish too much in too short a time; or, I should say, the program is rapidly going about things in the wrong way. There is an overall aura of confusion and disorientation which communicates itself to the participants."

Another incident illustrated the handicapped student's sensitivity to identification with others like himself. A rehabilitation news booklet was made available to each handicapped student by mail. One handicapped recipient of this booklet became quite agitated about it and caused a general emotional reaction throughout the project group. The material was withdrawn for this reason, even though it represented a significant source of important rehabilitation information for all concerned.

Another student dropout from the project felt that her non-resident status had been a crucial factor. "Being a day student has made it almost impossible for me to participate in the V.R.A. Since I will have an unusually heavy academic schedule next year, my parents have advised me not to try to be a part of this program again next year."

A male handicapped day student who chose to continue in the project stated his feelings in this way: "Participation in the V.R.A. Project has been rewarding for me in at least five ways. (1) It has provided me with a feeling of belonging, (2) it has given me the satisfaction of knowing that I have helped initiate a new and promising study, (3) it has given me the satisfaction of knowing that I have helped provide a needy student with a workship, (4) it has given me the physical advantage of having an aide, and (5) it has brought me in contact with people I might never have met otherwise."

A female handicapped student expressed her reasons for continuing in the study as follows: "I am grateful for this chance to prove myself, for I feel that learning to live with others in all sorts of situations

Table 6

Reasons Given for Withdrawing from Project

	Aides	Handicapped
Graduated from College	2	
Left College by student action*	3	
Left College by administrative action	1	1
Medical Complications	1	2
Partner left no substitute assignment available	1	
Disliked identification with handicapped population		2
Saw no need for assistance		2
Unable to make adjustment to partner	1	1
Unable to carry total work load	2	

* Includes transfer in good standing to another institution

is a vital part of the college experience. I feel this is particularly important where handicapped students are involved, both for the non-handicapped and the handicapped students."

Table 7 indicates how the aides reacted to the project as a whole after at least one semester of participation. Little change was noted between the two periods in this respect.

Table 7
Student Reactions to Project

	Spring 1966	Spring 1967
Wish to continue in Project	65%	72%
Wish to Discontinue	20%	22%
Maybe	15%	6%

Handicapped students were asked to complete an activities of daily living checklist to show where and when physical assistance was required. The student aide also completed the same checklist independently, indicating the specific assistance he rendered to that handicapped student. Table 8 illustrates the high level of agreement obtained in this procedure for evaluation. No significant differences were observed.

Table 8
Activities of Daily Living
Checklist Raw Scores

Male			
Handicapped		Aide	
Mean	S.D.	Mean	S.D.
54.25	4.71	58.5	3.35
Female			
Mean	S.D.	Mean	S.D.
41.77	17.17	40.77	17.32

A final concern throughout the study was that of a role definition for student aides. It became quite clear that a meaningful job-

description was essential to the success of the project. It also became very evident that a satisfactory, overall role definition was not feasible. Each attempt in this direction by staff members was instantly met by an exception which made any blanket definition quite meaningless. The problem was placed in the hands of aides themselves for their study and contributions. As a result of such attempts to define the role of aides to handicapped students, a student manual was prepared in mimeographed form. This student document provided certain general guidelines to be followed as well as specific interpersonal attitudes or practices to avoid. At the conclusion of the pilot period, there was little evidence to warrant a more explicit role definition than the one provided by the students themselves in this manner.

A final word on results is that great care must be exercised in order to accommodate substantial numbers of handicapped students on a college campus. It appears that many handicapped students are able to function with or without formal assistance in their activities of daily living. Assistance as such however, appears to be an absolute need even though it may be obtained on an informal basis by the handicapped student. This study has further revealed that assumptions about the needs of individual students are seldom valid, but will usually require formal investigation.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The pilot study was viewed as having two distinct phases with only a portion of the students participating throughout the entire period. The first phase was exploratory and attempts were made to work with the situation as it existed. Student aides were assigned to handicapped students and four primary consultants served as resource persons to a given number of students. During the second phase of the study, major features of the revised research design were executed into daily practice. One person became responsible for all counseling and administrative contacts with the students. A formal program of standardized testing was conducted. A half-time supervisor of aides maintained close contacts with the students and served as "trouble-shooter" for student problems.

Members of a Research Evaluation Team from off-campus locations made regular visits to the project-site to plan overall research methods and to inspect all phases of project activity. This procedure tended to reduce local bias in evaluations of student progress and related matters.

Findings in all areas including academic, health, psychological, social, and vocational matters tentatively suggested that handicapped students do not differ significantly from the general college population. Student aides were somewhat stronger academically due to the initial screening process.

Psychological test data suggested that a relatively poorer overall adjustment prevailed among students who chose to remain in the study. As they made positive gains in self-concept and adjustment as measured by standardized instruments, they tended to move out of the study. It appeared that the project might have provided a structure of acceptance and security which was needed at one stage of development. The findings were generally applicable to aides and handicapped students alike.

Three basic problem areas have emerged from the study as a whole and consequently have implications for any other institution attempting a similar program. First, the acute need for a broad theoretical framework carefully developed in advance by the administrators of the institution. Second, the need for an adequate research design to test theories as presented in reference to serving the needs of handicapped students in higher education. Third, a fundamental necessity to plan and foster interpersonal communication at all levels and between levels in the total program.

What appeared to be the most vexsome and serious problems from a rehabilitation point of view, were largely the day to day tensions of intimate, interpersonal living arrangements. It appeared that having achieved a maximum level of physical rehabilitation before entering college had by no means assured an optimal social adjustment by the handicapped. It also appeared that student aides and even professional adults experienced a significant degree of involvement or loss of objectivity under these conditions. All of which is to imply that orientation, education, and exposure are necessary in order to promote an adequate understanding of the rehabilitation process.

A final implication of this exploratory study is that severely handicapped students, up to and including quadriplegics, can successfully attend college in residence. When attention is given to the above areas, such students can function with efficiency and ultimately become wage-earning, tax-paying citizens.

Specific recommendations arising from this study, for this institution included the following: (1) A need for a summer trial and evaluation session for all new aides and handicapped, (2) a need for a credit course or rehabilitation seminar for aides throughout the academic year, (3) A specific ratio or guideline for admissions as to the number of handicapped students per able-bodied student on campus.

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Appendix A

Project Staff

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Appendix B

Normative Data - Tennessee Self-Concept Scale
University of Georgia

Scale	Males (N=24) M	S. D.	Females (N=126) M	S.D.
Self-Criticism	35.50	7.39	36.26	5.92
Total P	342.08	31.12	352.29	35.98
Identity	128.37	7.60	131.63	8.85
Self-Satisfaction	101.17	15.05	106.52	15.20
Behavior	112.54	11.83	115.88	10.71
Physical Self	72.87	7.73	71.26	7.29
Moral-Ethical	65.08	10.91	71.89	7.54
Personal Self	64.92	6.65	65.73	7.67
Family Self	70.54	7.22	73.05	8.22
Social Self	68.67	7.05	72.03	8.13
Total V.	53.96	15.76	49.52	12.45
Distribution	124.71	19.83	124.86	22.57

Appendix C

High School Averages and S.A.T.

	Female Aides-Continuers (N=5)		Female Aides Dropouts (N=4)	
	H.S. Ave.	S.A.T.	H.S. Ave.	S.A.T.
Mean	85.76	913.60	85.52	1011.25
S.D.	3.08	88.94	5.56	46.40

	Male Aide Continuers (N=3)		Male Aide Dropouts (N=1)	
	H.S. Ave.	S.A.T.	H.S. Ave.	S.A.T.
Mean	89.00	1070.66	91.00	984.00
S.D.	1.41	51.18	0.	0.

	Female Handicapped Continuers (N=4)		Female Handicapped Dropouts (N=6)	
	H.S. Ave.	S.A.T.	H. S. Ave.	S.A.T.
Mean	88.29	908.00*	88.01	993.0
S.D.	7.06	148.09	15.29	331.55

	Male Handicapped Continuers (N=2)		Male Handicapped Dropouts (N=1)	
	H.S. Ave.	S.A.T.	H.S. Ave.	S.A.T.
Mean	84.93	1033.00	84.90	950.00
S.D.	1.57	266.00	0.	0.

* Significant at .05 level

Appendix D

TENNESSEE SELF CONCEPT SCALE

Composite Profiles

Score	Female Aides Continuers (N=5) Spring 1966		Female Aides Dropouts (N=3) Spring 1966	
	Mean	S.D.	Mean	S.D.
Self Criticism	40.20	5.52	40.00	4.96
T/F	1.06	19.10	1.08	.28
Net Conflict	1.00	10.70	-2.33	11.11
Total Conflict	31.40*	6.05	21.33	4.93
Total Positive	352.40	19.56	338.33	8.19
1-Identity	130.8	4.11	128.66	7.65
2-Self Satis.	105.6	10.96	103.00	3.74
3-Behavior	116.0	8.29	107.66	2.37
A-Physical Self	71.0	6.87	69.33	2.71
B-Moral-Ethical	66.0	4.24	69.66	5.64
C-Personal Self	64.2	5.03	61.33	2.57
D-Family Self	74.2	5.03	67.30	10.55
E-Social Self	77.0	7.94	70.33	2.16
Total Variability	54.2	7.65	50.33	12.29
Col. Total V.	29.8	8.25	30.33	8.74
Row Total V.	21.8	3.24	20.33	3.11
Distribution	124.8	24.29	110.66	14.77
5	23.0*	11.45	10.33	.97
4	24.4	7.05	30.66	4.96
3	11.8	4.53	15.33	6.60
2	18.6	7.55	24.00	1.41
1	22.4	6.65	13.00	6.16
Defensive Positive	54.6*	2.80	45.33	2.42
General Malad.	101.2	9.76	94.66	7.49
Psychosis	42.0	7.40	48.66	3.76
Pers. Disorder	71.4	9.81	71.66	4.81
Neurosis	80.0	10.03	78.66	8.79
Pers. Integration	8.8*	3.05	14.33	.56

* Significant at .05 level

Appendix E

TENNESSEE SELF CONCEPT SCALE

Composite Profiles

Score	Female Aides Continuers (N=5) Fall 1966		Female Aides Dropouts (N=3) Spring 1966	
	Mean	S.D.	Mean	S.D.
Self Criticism	39.20	7.23	40.00	4.96
T/F	1.05	.20	1.08	.28
Net Conflict	2.80	12.61	-2.33	11.11
Total Conflict	33.60*	8.93	21.33	4.93
Total Positive	354.00	22.05	338.33	8.19
1-Identity	131.4	7.60	128.66	7.65
2-Self Satis.	108.4	4.17	103.00	3.74
3-Behavior	114.2	12.44	107.66	2.37
A-Physical Self	68.4	6.52	69.33	2.71
B-Moral-Ethical	70.0	6.06	69.66	5.64
C-Personal Self	63.8	5.56	61.33	2.57
D-Family Self	75.4	3.07	67.30	10.55
E-Social Self	76.4	4.88	70.33	2.16
Total Variability	49.4	12.02	50.33	12.29
Col. Total V.	29.6	5.81	30.33	8.74
Row Total V.	19.8	6.41	20.33	3.11
Distribution	123.4	22.52	110.66	14.77
5	22.2*	16.43	10.33	.97
4	23.2	12.31	30.66	4.96
3	18.2	3.65	15.33	6.60
2	17.0	9.01	24.00	1.41
1	19.4	6.34	13.00	6.16
Defensive Positive	57.2*	.63	45.33	2.42
General Malad.	100.8	6.43	94.66	7.49
Psychosis	43.2	6.32	48.66	3.76
Pers. Disorder	73.0	8.36	71.66	4.81
Neurosis	84.4	4.47	78.66	8.79
Pers. Integration	9.0*	3.09	14.33	.56

* Significant at .05 level

Appendix F

TENNESSEE SELF CONCEPT SCALE

Composite Profiles

Score	Female Handicapped Continuers (N=4)		Female Handicapped Dropouts (N=2)	
	Mean	S.D.	Mean	S.D.
Self Criticism	40.50	7.12	42.00	6.00
T/F	1.32	255.00	.72	.13
Net Conflict	-8.25	6.64	16.00	4.00
Total Conflict	31.75	2.86	33.00	3.00
Total Positive	341.75	34.73	331.00	9.00
1-Identity	127.75	17.61	124.50	10.50
2-Self Satis.	106.50	12.01	93.00	3.00
3-Behavior	107.75	8.43	114.00	0.
A-Physical Self	65.00	4.52	65.50	5.
B-Moral-Ethical	70.25	3.63	66.00	4.
C-Personal Self	65.25	6.60	60.00	2.
D-Family Self	71.75	9.73	72.00	5.
E-Social Self	69.75	10.49	67.00	5.
Total Variability	53.75	9.29	49.50	15.50
Col. Total V.	36.00	7.77	34.00	12.
Row Total V.	17.75	3.89	15.50	3.50
5	20.50	7.76	15.50	7.50
4	22.00	5.47	21.50	2.50
3	21.50	13.68	21.00	2.00
2	13.25*	3.83	28.50	9.50
1	20.50	11.19	13.50	6.50
Defensive Positive	46.25	8.43	40.00	4.00
General Malad.	97.25	9.80	99.50	6.50
Psychosis	45.00	8.24	41.50	3.50
Pers. Disorder	75.00	7.54	71.00	4.00
Neurosis	80.25	9.36	79.50	3.50
Pers. Integration	8.00	2.00	10.00	1.00

* Significant at .05 level

Appendix G

MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

Composite Profiles

Score	Female Handicapped Continuers (N=3)		Female Handicapped Dropouts (N=5)	
	Mean	S.D.	Mean	S.D.
L	4.00	2.15	3.66	.48
F	3.33	1.70	5.00	3.52
K	14.66	1.75	16.40	3.44
Hypochondriasis	6.00	2.70	14.40	2.57
Depression	19.00	2.15	21.20	3.91
Hysteria	20.66	3.13	23.00	3.09
Psychopathic	14.00*	4.24	23.80	1.46
Interest	39.66	2.02	41.00	2.60
Paranoia	9.00	1.41	12.60	2.57
Psychasthenia	12.66	1.84	33.60	7.17
Schizophrenia	15.66	4.66	32.80	4.79
Hypomania	51.15	7.15	21.40	2.05
Social I.E.	25.66	5.46	26.40	6.46

* Significant at .05 level

Score	Male Handicapped Continuers (N=2)	
	Mean	S.D.
L	5.50	1.50
F	2.00	4.00
K	18.00	4.00
Hypochondriasis	14.00	3.00
Depression	22.50	.50
Hysteria	20.00	3.00
Psychopathic	24.50	.50
Interest	29.00	3.00
Paranoia	9.50	.50
Psychasthenia	30.50	2.50
Schizophrenia	31.50	.50
Hypomania	20.00	1.00
Social I.E.	30.50	2.00